Amendments To Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (CURRENTLY AMENDED) A method of generating heat using a hydrogen condensate,

wherein the hydrogen condensate comprises a metal nano-ultrafine particle containing a plurality of ZrO_2.Pd particles ~~metal atoms~~ and a plurality of deuterium ~~hydrogen isotope~~ atoms solid-dissolved among the plurality of ZrO_2.Pd particles ~~metal atoms~~, ~~and~~ such that at least two of the plurality of deuterium ~~hydrogen isotope~~ atoms are condensed so that an inter-atomic nuclear distance between the two deuterium ~~hydrogen isotope~~ atoms is smaller than or equal to an internuclear spacing of the deuterium atoms in a deuterium molecule ~~consisting of the two hydrogen isotope atoms under the same conditions as the at least two of the plurality of hydrogen isotope atoms~~,

the heat generation method comprising;

(i) condensing the hydrogen condensate by

(a) providing the nano-ultrafine particle in a container;

(b) evacuating the container to high level of vacuum:

(c) introducing the deuterium ~~hydrogen isotope~~ atoms into the container so as to solid-dissolve the deuterium ~~hydrogen isotope~~ atoms in the nano-ultrafine particle so that the hydrogen condensate has a deuterium ~~hydrogen isotope~~ atoms/nano-ultrafine particle atom ratio of 250% or more;

(ii) applying energy to the hydrogen condensate sufficient that at least two of the plurality of deuterium ~~hydrogen isotope~~ atoms solid-dissolved in the hydrogen condensate fuse; and

(iii) generating heat by causing the at least two deuterium ~~hydrogen isotope~~ atoms to fuse with each other due to the energy.

2. (CANCELLED)

3. (CURRENTLY AMENDED) A method of generating heat using a hydrogen condensate,

wherein the hydrogen condensate comprises a metal alloy composite containing a plurality of $Zr_3NiO.Pd$ particles ~~metal atoms~~ and a plurality of deuterium ~~hydrogen isotope~~ atoms solid-dissolved among the plurality of $Zr_3NSO.Pd$ particles ~~metal atoms~~, ~~and~~ such that at least two of the plurality of deuterium ~~hydrogen isotope~~ atoms are condensed so that an inter-atomic nuclear distance between the two deuterium ~~hydrogen isotope~~ atoms is smaller than or equal to an internuclear spacing of the deuterium atoms in a deuterium molecule ~~consisting of the two hydrogen isotope atoms under the same conditions as the at least two of the plurality of hydrogen isotope atoms~~,

the heat generation method comprising:

(i) condensing the hydrogen condensate by

(a) providing the nano-ultrafine particle in a container;

(b) evacuating the container to high level of vacuum;

(c) introducing the deuterium ~~hydrogen isotope~~ atoms into the container so as to solid-dissolve the deuterium ~~hydrogen isotope~~ atoms in the metal alloy composite ~~nano-ultrafine particle~~ so that the hydrogen condensate has a deuterium ~~hydrogen isotope~~ atoms/~~nano-ultrafine particle~~ metal alloy composite atom ratio of 250% or more;

(ii) applying energy to the hydrogen condensate sufficient that at least two of the plurality of deuterium ~~hydrogen isotope~~, atoms solid-dissolved in the hydrogen condensate fuse; and

(iii) generating heat by causing the at least two deuterium ~~hydrogen isotope~~ atoms to fuse with each other due to the energy.

4. (ORIGINAL) A method according to claim 3, wherein the energy is generated based on at least one of ultrasonic wave, strong magnetic field, high pressure, laser, laser explosive flux-compression, high-density electron beam, high-density current, discharge, and chemical reaction.

5. (PREVIOUSLY PRESENTED) A method according to claim 3, wherein in the step of generating heat, the at least two hydrogen isotope atoms are fused with each other to generate a helium molecule in addition to the heat.

6. (CURRENTLY AMENDED) A hydrogen condensate, comprising:

a metal nano-ultrafine particle containing a plurality of ZrO_2.Pd particles ~~metal atoms~~; and

a plurality of deuterium ~~hydrogen isotope~~ atoms solid-dissolved among the plurality of ZrO_2.Pd particles ~~metal atoms~~,

wherein at least two of the plurality of deuterium ~~hydrogen isotope~~ atoms are condensed so that an inter-atomic nuclear distance between the two deuterium ~~hydrogen isotope~~ atoms is smaller than or equal to an internuclear spacing of a molecule consisting of the two deuterium ~~hydrogen isotope~~ atoms ~~under the same conditions as the at least two of the plurality of hydrogen isotope atoms~~; and

wherein the hydrogen condensate is produced by:

providing the nano-ultrafine particle in a container;

evacuating the container to high level of vacuum;

introducing the deuterium ~~hydrogen isotope~~ atoms into the container so as to solid-dissolve the deuterium ~~hydrogen isotope~~ atoms in the nano-ultrafine particle so that the hydrogen condensate has a hydrogen isotope atoms/nano-ultrafine particle atom ratio of 250% or more.

7. (CANCELLED)

8. (CURRENTLY AMENDED) A hydrogen condensate, comprising:

a metal alloy composite containing a plurality of Zr_3NiO.Pd particles ~~metal atoms~~; and

a plurality of deuterium ~~hydrogen isotope~~ atoms solid-dissolved among the plurality of Zr_3NiO.Pd particles ~~metal atoms~~,

wherein at least two of the plurality of deuterium ~~hydrogen isotope~~ atoms are condensed so that an inter-atomic nuclear distance between the two deuterium ~~hydrogen isotope~~ atoms is smaller than or equal to an internuclear spacing of a molecule consisting of the two deuterium

~~hydrogen isotope~~ atoms ~~under the same conditions as the at least two of the plurality of hydrogen isotope atoms~~; and

wherein the hydrogen condensate is produced by:

providing the nano-ultrafine particle in a container;

evacuating the container to high level of vacuum;

introducing the deuterium ~~hydrogen isotope~~ atoms into the container so as to solid-dissolve the hydrogen isotope atoms in the metal alloy composite ~~nano-ultrafine particle~~ so that the hydrogen condensate has a deuterium ~~hydrogen isotope~~ atoms/~~nano-ultrafine particle~~ metal alloy composite atom ratio of 250% or more.

9. (ORIGINAL) A method according to claim 1, wherein the energy is generated based on at least one of ultrasonic wave, strong magnetic field, high pressure, laser, laser explosive flux-compression, high-density electron beam, high-density current, discharge, and chemical reaction.

10. (PREVIOUSLY PRESENTED) A method according to claim 1, wherein in the step of generating heat, the at least two hydrogen isotope atoms are fused with each other to generate a helium molecule in addition to the heat.

11. (NEW) A method according to claim 1, wherein the energy is an ultrasonic wave at 300 watts and 19kHz.

12. (NEW) A method according to claim 3, wherein the energy is an ultrasonic wave at 300 watts and 19kHz.